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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/733,789	12/10/2003	Mehmet Yunt	MWS-087	8948

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EXAMINER	
VU, TUAN A	
ART UNIT	PAPER NUMBER
2193	

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	04/11/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary	Application No.	Applicant(s)	
	10/733,789	YUNT ET AL.	
	Examiner	Art Unit	
	Tuan A. Vu	2193	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *09 February 2007*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-83* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-83* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

1. This action is responsive to the Applicant's response filed 2/9/07.

As indicated in Applicant's response, claims 35, 39-42, 44, 48, 52-53, 55-60, 62-63, 67, 70-74, 77 have been amended. Claims 1-83 are pending in the office action.

Claim Rejections - 35 USC § 101

2. 35 U.S.C. 101 reads as follows:

> Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.
>
> The Federal Circuit has recently applied the practical application test in determining whether the claimed subject matter is statutory under 35 U.S.C. § 101. The practical application test requires that a " useful, concrete, and tangible result" be accomplished. An "abstract idea" when practically applied is eligible for a patent. As a consequence, an invention, which is eligible for patenting under 35 U.S.C. § 101, is in the "useful arts" when it is a machine, manufacture, process or composition of matter, which produces a concrete, tangible, and useful result. The test for practical application is thus to determine whether the claimed invention produces a "useful, concrete and tangible result".

The current focus of the Patent Office in regard to statutory inventions under 35 U.S.C. § 101 for method claims and claims that recite a judicial exception (software) is that the claimed invention recite a practical application. Practical application can be provided by a physical transformation or a useful, concrete and tangible result. The following link on the World Wide Web is for the United States Patent And Trademark Office (USPTO) policy on 35 U.S.C. §101.
<http://www.uspto.gov/web/offices/pac/dapp/opla/preognotice/guidelines101_20051026.pdf>

3. Claims 77-83 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter.

Specifically, claim 77 recites a system in an electronic device having a graphical environment comprising a debugger, a model view and an execution list view. The mere reciting of a system being 'in a electronic device' cannot establish that the electronic device is actually

the system, nor can it reasonably establish that the device does have particular hardware to enable the operation of the system in order to yield tangible output. The system as claimed is thus perceived as having a graphical environment, a debugger, a model view and a list view with functionality as to display. According to the Specifications, the debugger is a tool as a standard computer software-implemented debugger; and the graphical environment, model view, and list view are functions operating within this graphical debugger environment, which amounts to components of a software tool. To establish any reasonable possibility for carrying out the execution of the recited debugger tool, not only does the system have to include a hardware device, but this device also has to (reasonably) provide storage support and/or execution engine operable to actualize the software entities and (reasonably) yield a real world tangible result from actual data transformation. Any functionality pertinent to the *debugger* as well as the *views* as recited above cannot be construed as able to generate tangible results, absent reasonable teaching that the system is operating with a computer or a tangible execution engine stored in the device so to actualize such functionality.

Software entities being recited without hardware embodiment to support software functionality will not be construed as being able to yield a concrete, tangible result in terms of real-world useful application output. The claim is deemed not fulfilling the requirements of the practical Application test; and is rejected for leading to non-statutory subject matter.

Claims 78-83 do not appear any hardware support to the deficiency of the base claim, hence are also rejected for leading to a non-statutory subject matter.

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

5. Claims 1-83 are rejected under 35 U.S.C. 102(b) as being anticipated by *the Mathworks*, 'Simulink: Model-based and System-based Design', *Using Simulink*, Version 5, copyright 1990-2002, last printed July 2002, ch. 2-11, 13-14; url: <http://aer.ual.es/docencia_es/iai/archivos/simulink.pdf> (hereinafter Simulink5)

As per claim 1, Simulink5 discloses a method in a graphical modeling and execution environment, the method comprising the steps of:

providing a model view and an execution list view of a model being executed (ch. 2: pg. 2-10→2-24; ch.13: pg. 13-17→13-19), said model view showing a plurality of components of said model, said execution list view showing an execution list depicting the execution order of methods called (e.g. *Time Step, Math Function block, Sum block, Product block* - pg. 2-10,11; 2-19,20; ch. 5: pg. 5-16→5-17) during the execution of a time step (e.g. ch. 10: pg. 10-40) of said model, said model view interfaced with a debugger; and

indicating visually the state of the execution list (e.g. ch. 5: pg. 5-16→5-24; ch. 13: pg. 13-20—13-26) on said model view.

As per claims 2-3, Simulink5 discloses displaying a visual indicator indicating an association between an executing block method and a calling block on said model view (pg. 2-19—2-20, pg. 2-31; pg. 14-24); indicator indicating an association between a currently executing

system method and a subsystem block owner (pg. 2-22,23; pg. 2-32; pg. 14-24,25) of said currently executing system method on said model view.

As per claim 4, Simulink5 discloses creating a visual representation of a model component not previously displayed in said model view, said model component calling a method; and displaying a visual indicator indicating an association between the visual representation of the model component not previously displayed and the method called by the model component (*refine output* – pg. 2-17; ch. 10: pg. 10-14→10-20).

As per claim 5, Simulink5 discloses extending a visual indicator from an originating point to a first called method depicted in said model view; and extending sequentially said visual indicator to at least one of each subsequently called method depicted in said model view and a virtual subsystem in said model view during a time step in said execution (*propagating, link...nonstructural* - pg. 5-28).

As per claims 6-7, Simulink5 discloses indicating the type of method executing in said model view; as a visual indication (ch. 14: pg. 14-24,25).

As per claim 8, Simulink5 discloses visual indication is made by one of altering the color of a portion of a model component in said model view representing said method (see pg. 4-5-→4-17; pg. 5-15) and inserting a geometric design (pg. 4-17-4-21, 4-36 – Note: subsystem of sinusoidal functions or entering a diagram representing a circuit for annotating input **reads on** geometric design) in a model component displayed in said model view.

As per claims 9-10, see visible breakpoints in said model view and conditional breakpoints (e.g. ch. 13: *conditional breakpoints* - pg. 13-12 → 13-15; ch. 13: pg. 13-24).

As per claim 11, Simulink5 discloses arranging said execution list view to show the methods executed in a current time step in the execution of said model in a tree structure (tree – ch. 5: pg. 5-18→5-33).

As per claims 12-13, Simulink5 discloses that a user sets visible breakpoints in said execution list view; wherein said breakpoints are conditional breakpoints (see claim 9-10; pg. 13-24).

As per claim 14, Simulink5 discloses setting at least one a trace point and a display point in at least one of said model view and said execution list view (see pg. 13-14-→ 13-26).

As per claims 15-16, Simulink5 discloses generating at least one of debugging data and profiling data (ch. 14: pg. 14-21) during the execution of said model;.

associating said at least one of debugging data and profiling data with at least one of said components of said model; and

visually indicating said associated data in said model view (Profile Summary: pg. 14-21→14-27);

wherein said associated data includes solver data (Note: using profile to support data solving with accelerator reads on solver data being associated with model components under profiling execution).

As per claim 17, Simulink5 discloses generating debugging data with said debugger during the execution of said model; associating said debugging data with at least one of said components of said model; and visually indicating said associated data in said execution list view (see ch. 13-17-→13-25).

As per claim 18, Simulink5 discloses the number of iterations of at least one of said plurality of model components during a time step in said execution (e.g. pg. 13-19; pg. 4-42).

As per claims 19-20, Simulink5 discloses selecting a user-set speed parameter via a control associated with said model view; and executing said model in said model view based on the selected speed parameter (pg. 10-41; *parameters dialog box* -pg. 14-6) selecting a user-set speed parameter via a control associated with said execution list view; and executing said model in said execution list view based on the selected speed parameter (Note: setting up accelerator for simulation reads on parameter control associated with execution list – see claim 1).

As per claim 21, Simulink5 discloses receiving input from a user-controlled input device in said graphical modeling and execution environment, said input being interpreted by said graphical modeling and execution environment as a user-selected speed parameter; and executing said model in said execution list view based on the selected speed parameter (refer to claims 19-20 for analogous subject matter based on user input and control parameter at tool graphical level).

As per claims 22-23, Simulink5 discloses altering at least one of a connection between said model components and at least one of said model components; and adjusting at least one of said execution list view and said model view to indicate the effects of said altering (e.g. ch. 4: pg. 4-9 → 4-19; ch. 2: pg. 2-10→1-16; pg. 6-7→6-24; refer claims 19-20); wherein said altering step includes at least one of the adding and removing of at least one of model components and a connection between said model components (ch. 4; pg. 6-7→6-24).

As per claim 24, Simulink5 discloses displaying elements of the compiled state (e.g. *CompiledSampleTime* -pg. 2-28; *compiled model* - pg. 14-4,5) of said model in said model view.

As per claims 25-26, Simulink5 discloses displaying debug information from said debugger to a user in said model view as a tool tip (e.g. *tooltip* – pg. 3-6) over a component of said model in response to user input; wherein the displayed information indicates a signal value (pg. 6-29→6-31) of a signal line in said model view.

As per claims 27-28, Simulink5 discloses wherein the displayed information is made persistent in said model view (see pg. 4-76; 5-20; 10-23); wherein said displayed information is updated in response to the execution of said model (ch. 2: pg. 2-11→2-19; pg. 4-76).

As per claims 29-31, Simulink5 discloses displaying debug information from said debugger to a user in said execution list view as a tool tip in response to the movement of a pointing device (pg. 3-6; tootip – pg. 14-16; *Navigating, masked* - pg. 9-9, 9-12; *clicking* - pg. 14-26 – Note: tooltip shown as a result of a cursor navigating move during analyzing state of simulation or modeling **reads on** debug information for each block of models being setup or executed as seen in pg. 14-37) in said execution list view over a component of said model associated with said debug information; wherein the displayed information is made persistent in said execution list view (Note: any data displayed for an instance of simulation is persistent for said list of execution instance); wherein said displayed information is updated in response to the execution of said model (refer to claim 28).

As per claim 32, Simulink5 discloses filtering the displayed execution list of methods in said execution list view so that only methods satisfying (ch. 9: pg. 9-2→9-7) a user-specified criteria are displayed.

As per claims 33-34, see (pg. 4-70, 79; pg. 14-25) for creating a record for each unique method invocation; and displaying data associated with said unique method invocations as they

are called; anchoring said record to a block owner of (*clicking*- pg. 14-24→14-26; pg. 9-12; pg. 13-21,23) said unique method invocation in said model view (Note: one parent block reads on method invocation being unique).

As per claims 35-36, Simulink5 discloses displaying the calling of said unique method invocation with varying degrees of intensity representative of the frequency of the invocation (ch. 14: pg. 14-24→14-25); creating a unique method invocation for an execution exception event (*error message, error dialogue* -- ch. 2: pg. 2-23, 24; pg. 7-13,14; pg. 10-36).

As per claim 37, Simulink5 discloses wherein a user sets non-visible breakpoints (ch. 13: pg. 13-24 – Note: programmatic breakpoints being conditional to execution reads on non-visible) in at least one of said model view and said execution list view.

As per claim 38, Simulink5 discloses wherein at least one of a set of debugging data and a set of profiling data are displayed to a user in a separate view (*help browser* – pg. 14-23).

As per claim 39, Simulink5 discloses a medium holding computer-executable instructions for performing debugging in a graphical modeling and execution environment on an electronic device, said medium executable on said electronic device for performing a method, said method comprising instructions:

providing a model view and an execution list view an execution list depicting the execution order of methods called … time step … with a debugger;

indicating visually the state of the execution … model view;

all of which steps having been addressed in claim 1 which recites the same corresponding limitations.

As per claims 40, 41 and 42-43, refer to rejection of claims 2, 3, and 5, respectively.

As per claims 44-76, refer to claims 6-38 respectively for corresponding rejection.

As per claim 77, Simulink5 discloses in a graphical design environment, a system comprising:

a debugger, said debugger gathering debug information from the simulation of a model in said graphical design environment (ch. 2; ch. 13);

a model view, said model view displaying a plurality of components of a model and being interfaced with said debugger; and

an execution list view, said execution list view displaying an execution list (ch. 2: pg. 2-10→2-24; ch.13: pg. 13-17→13-19) depicting an execution order of methods called during the execution of a time step of said model, said execution list view state being visually represented (*Time Step, Math Function block, Sum block, Product block* - pg. 2-10,11; 2-19,20; ch. 5: pg. 5-16→5-17) on said model view, said execution list view being generated by said debugger.

As per claims 78-79, refer to claims 2-3 (refer to claim 1 for block order).

As per claim 80, refer to claims 12 and 14;

As per claims 81-83, refer to claims 13, 6, and 8 respectively for corresponding rejection.

Response to Arguments

6. Applicant's arguments filed 2/9/07 have been fully considered but they are not persuasive. Following are the Examiner's observation in regard thereto.

35 USC § 101 Rejection:

(A) The Applicants have submitted that amending with 'in an electronic device' remedy to the deficiency. The rejection has set forth how this 'device' is not perceived as contributing to providing storage and execution support in order to realize any functionality intrinsic to the

software tool construed from the claimed graphical debugging environment. This amounts to insufficient teaching for enabling the realization of data transformation leading to a tangible, useful and concrete result.

35 USC § 102 Rejection:

(B) Applicants have submitted that by exposing 'execution list of methods to the user', the invention allows user's reception of information other than the results of an output method; and the Simulink5 cited parts do not disclose 'an execution list view showing an execution list depicting the execution order of methods called during the execution ... of said model' as required in claim 1 (Appl. Rmrks pg. 16). That is, the Invention's sorted 'list of methods' -- with one-to-one correspondence with blocks as shown in Specs: Fig. 16A-B -- clearly contrasts with Simulink5's list of blocks as proffered by Examiner, which is not considered methods shown as in an execution list (Appl. Rmrks pg. 17, middle).

First, the insight about 'information other than the outputs' of an executing model is not commensurate with the scope or connotation derived from the claim language: this insight is moot.

Second, it is necessary to analyze what has been interpreted from the language phrased as 'execution order of methods called during the execution'. It is noted that there is not explicit teaching in the above phraseology about displaying a listing of any class method in particular format (like textual Java code); or directory tree containing some explicit source code constructs or methods as alleged by Applicants when referring to Fig. 16B. As interpreted, there are methods being called and this calling, which can be underlying the debugger GUI interface, follows some order and the order thereof is tangibly perceived as a updated listing via a display.

The update sequence of blocks cited in the Office Action get feedback from the underlying operations and such update regarding this execution state constantly gets reflected back on the layout of the blocks as they are sequenced on the viewing interface (see Simulink5: pg. 2-10, 2-11). Therefore, 'order of methods called' is perceived as the sequence by which the test sequence (being called) is executed; and 'depicting the execution order' which defines 'view showing an execution list' has been treated as such graphical view of dynamic updated dataflow about the iconic representation of executed code blocks with input and outputs changing with such updated flow. That is, the dynamic evolving of graphical modules -- by Simulink5-- as the underlying programmatic blocks are executed is analogized to this 'execution list': it executes, and it lists out the effect of its being executed.

Third, there is not sufficient teaching from the *method* claim to impart much of a particular insight to the term 'methods called' because of its sudden introduction in the claim, which starts out with 'a method comprising the steps of', making it hard to distinguish which method execution the claim is referring to, absent any inkling on what appears to be object oriented class methods. As far as broad reasonable interpretation is concerned, no weight is given to the connotation that this listing (execution list) is a sequence of source code (i.e. object-oriented methods?) constructs being particularly formatted and displayed (like a listing of lines) as asserted from the Inventors' allusion to Fig. 16B.

Fourth, the required correspondence between blocks displayed and source constructs is not remotely conveyed from the claim language, making this correspondence misplaced or moot. Applicant's arguments fail to comply with 37 CFR 1.111(b) because they amount to a general

allegation that the claims define a patentable invention without specifically pointing out how the language of the claims patentably distinguishes them from the references.

(C) Applicants have submitted that 'display of block execution order' as proffered by the Office Action is different from the display of state of the execution order of methods each block as required from the claim in the sense of 'indicating visually the state of the execution .. model view' (Appl. Rmrks pg. 17, bottom, pg. 18, top). The interpretation of 'execution order of methods called' has been set forth in section B. The claim does not make it very clear what is the differentiating characteristic between 'order of method called' being listed and 'visually indicating ... state of the execution list'. That is, how the visual display of an execution list/order of actually called methods differs from representation of a execution state thereof? Is there any dynamic event involved or just static textual display? For one of ordinary skill in the art faced with the teaching by Simulink5 (refer to Rejection), the blocks representative of some underlying methods or code block being invoked by the debugging tool would be analogized as listing of the order by which the execution is sequentially performed in order for the graphical interface to reflect changes to that order as listed; and this view of the flow of blocks **reads on** execution list. Further, as these blocks reflect the result of the underlying sequence of code invocation, the dynamic update of such block representation **reads on** the 'visually indicating' limitation. As to any allusion that a listing of methods also displays its dynamic state evolving with the underlying execution, the claim fails to provide how a listing of source constructs as intended by Applicants (via the referring to Fig. 16B; i.e. *depicting the execution order of the method calls*) can more or less be represented (i.e. *indicating visually the state of the execution list*) as a event-based displaying of some underlying process of executing (a model) and

dynamically showing the output thereof on the above source listing, which demands a little more than just 2 sentences as currently recited. The lack of specificity in the claim language has enabled the above interpretation by the Office Action. The argument is not persuasive.

(D) Applicants have submitted that Simulink5 as cited via MATLAB command window fails to teach 'state of execution list on said model view' (Appl. Rmrks pg. 18, middle). The list of execution states is clearly depicted in Simulink5 at pg. 13-20 in the context of a model setting of pg. 13-19. The 'command window' allegation does not seem to be conveying a clear rebut as to why the cited parts do not fulfill 'state of execution list on said model view'. Further, the argument about 'state of the execution list' not anticipated by Simulink5 has been in some way addressed in section C above. The argument is not specific and effective to overcome the rejection.

(E) Applicants have submitted that the requirements of claims 39 and 77 fall under those of claim 1, hence are not disclosed (by Simulink5) as alleged by the Office Action (Appl. Rmrks, pg. 18-19). As set forth above, the limitation referred to as 'execution order of methods' has been addressed in section B; and the limitation referred to as 'visual representation of the execution list view on the model view' has been addressed in section C.

The claims will stand rejected as set forth in the Office Action in view of the above observations in light of room left for broad interpretation with regard to the current state of the claim language.

Conclusion

7. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tuan A Vu whose telephone number is (272) 272-3735. The examiner can normally be reached on 8AM-4:30PM/Mon-Fri.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Meng-Ai An can be reached on (571)272-3756.

The fax phone number for the organization where this application or proceeding is assigned is (571) 273-3735 (for non-official correspondence - please consult Examiner before using) or 571-273-8300 (for official correspondence) or redirected to customer service at 571-272-3609.

Any inquiry of a general nature or relating to the status of this application should be directed to the TC 2100 Group receptionist: 571-272-2100.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished

applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Tuan A Vu
Patent Examiner,
Art Unit 2193
April 05, 2007